

What is claimed is:

1. A method of differentiating benign from malignant calcifications comprising the steps of:
  - detecting and segmenting breast calcifications from mammographic images of a patient;
  - analyzing the shape and distribution of the calcifications and estimation of preselected parameters using image and non-image data from the patient's file and demography; and
  - differentiating between benign and malignant calcification clusters and assignment of likelihood of malignancy using a predefined classifier.
2. The method of claim 1, wherein the predefined classifier is generated from a population of known benign and malignant calcification clusters from image and non-image data.
3. The method of claim 1, wherein the classifier utilizes shape descriptors comprising regional descriptors and boundary descriptors of an object.
4. The method of claim 3, wherein the regional descriptors comprise area and compactness of the object.
5. The method of claim 3, wherein the boundary descriptors comprise the shape of the object.
6. The method of claim 1, further comprising the step of inputting the patient's non-image data as a demographic feature that links images to patients, wherein the data is selected from the group consisting of the patient's age, the patient's physical data, the patient's family history, the patient's history, the patient's race, the patient's weight, the patient's gender, and the patient's lab test results.
7. A method of differentiating benign from malignant calcifications comprising the steps of:
  - implementing an automatic detection and segmentation system with a pattern recognition process of breast calcifications from mammographic images of a patient;
  - analyzing the shape and distribution of the calcifications and estimation of preselected parameters using image and non-image data from the patient's file;
  - inputting the patient's age as a demographic feature that links images to patients; and

differentiating between benign and malignant calcification clusters and assignment of likelihood of malignancy using a classifier, wherein the automated method yields an detection and likelihood of malignancy.

8. The method of claim 7, wherein the automatic system is computer aided diagnosis of medical imaging.